

Five new basslets of the genus *Pseudochromis* (Teleostei: Pseudochromidae) from the Indo-Australian archipelago

by

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With 5 figures

ABSTRACT

Five new species of the genus *Pseudochromis* Rüppell are described: *P. andamanensis* from the Andaman Sea, *P. aurifrons* and *P. marginatus* from New Guinea, *P. elongatus* from the Molucca Islands and *P. veliferus* from the Great Barrier Reef.

INTRODUCTION

Members of the genus *Pseudochromis* Rüppell are small, shallow-water, reef fishes found among rocks and corals throughout the tropical Indo-west Pacific region. Approximately two thirds of the fifty or so known species are to be found in the Indo-Australian archipelago; the purpose of the present paper is to provide descriptions of five new species from the Andaman Sea, the Molucca Islands, New Guinea and the Great Barrier Reef.

Methods follow LUBBOCK (1975). Type specimens are deposited at the British Museum (Natural History) (BMNH), the United States National Museum (USNM), the Bernice P. Bishop Museum, Hawaii (BPBM), the Australian Museum, Sydney (AMS) and the Muséum d'Histoire naturelle, Genève (MHNG).

Pseudochromis andamanensis n. sp.

Figure 1

DESCRIPTION

Based on fourteen fishes, 20.3-48.2 mm SL (standard length), from the eastern Andaman Sea.

Dorsal fin rays III (first spine minute) 22-24 (only one fish with 22, one fish with 23); anal fin rays III 13-15 (12 f2, 14 f10, 15 f1); pectoral fin rays 17-19 (usually 19) (first

ray minute, weakly spinous, very closely applied to second ray); pelvic fin rays I 5; principal caudal fin rays 17, with about 5 or 6 small, supplementary, rays above and below. Scale rows from origin of lateral line to base of caudal fin 36-38 (36 f4, 37 f4, 38 f3); tubular lateral line scales 25-29 (25 f1, 26 f2, 27 f4, 28 f2, 29 f1) in anterior portion, 4-10 in posterior, disconnected, portion beginning on the fourth or fifth row of scales below anterior portion (total 29-39 tubular scales); transverse scale series, counted forwards and upwards from the second anal spine, 11 or 12 + 1 + 2 or 3; predorsal scales 20-25; 4 rows of scales on preoperculum. 17-26 sensory pores in the

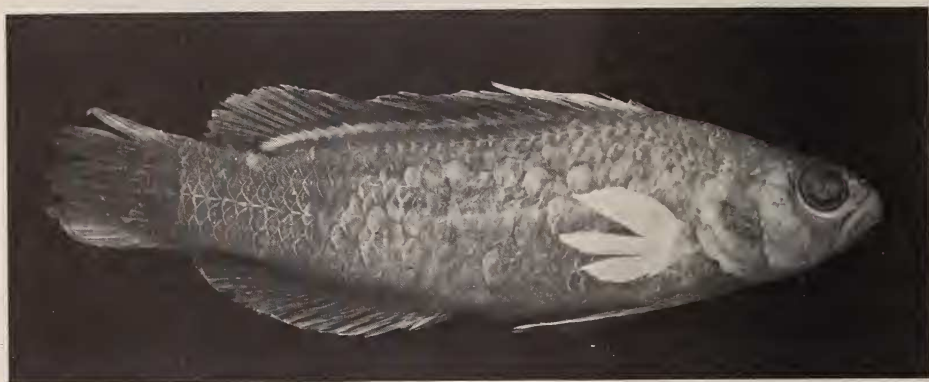


FIG. 1.

Holotype of *Pseudochromis andamanensis*, 44.9 mm SL.

post- and sub-orbital series, starting on the vertical above eye centre and extending down the hind margin of the eye to the upper edge of the maxilla (the first pore adjacent to the maxilla is included in the count). Gill rakers on first arch 3-5 + 1 + 9 or 10 = 14-16 (all elements counted). Maximum size 48.2 mm SL, 58.8 mm TL (total length).

The following measurements are presented as percentages of the SL, and do not include data from specimens less than 30 mm SL. Head length 27.3-31.8, mean 29.3; snout length 6.0-8.3, mean 6.7; orbit diameter 7.5-9.9, mean 8.7; predorsal length 33.9-37.4, mean 35.9; preanal length 61.0-64.8, mean 63.2; depth at first dorsal spine 24.6-27.7, mean 26.6; body width 12.1-14.8, mean 13.6; least depth of caudal peduncle 13.9-15.8, mean 14.8; dorsal fin base length 52.0-57.5, mean 55.1; length of third soft dorsal ray 11.6-15.7, mean 13.6; anal fin base length 24.2-27.4, mean 25.2; length of third soft anal ray 11.9-15.1, mean 13.4; pectoral fin length 16.0-19.2, mean 18.0; length of longest pelvic fin ray 20.9-23.8, mean 22.4; caudal fin length 20.7-24.5, mean 22.5.

Small, elongate, reef fish, head and body moderately compressed. Jaws nearly equal anteriorly, reaching posteriorly to below pupil; cleft of mouth oblique. Eye with pear-shaped pupil. Scales on head and anterior part of body cycloid, remainder ctenoid. Snout, preorbital and anterior part of interorbital area, chin and maxilla naked; 4 transverse scale series on preoperculum; scales irregular and large on operculum. Lateral line scales with sensory tubules; lateral line series interrupted, consisting of an anterior portion rising rapidly from dorsal angle of branchial opening, then continuing parallel with dorsal fin base towards posterior part of fin, and a posterior portion on caudal

peduncle and occasionally scaly base of caudal fin. Upper part of operculum, edge of preoperculum, orbital and supraorbital region of head, lower jaw and snout bearing sensory canals; opercular edge entire, inconspicuously serrated dorsally; edge of preoperculum smooth.

Upper jaw with a single lateral series of fine, sharp, slightly recurved, subconical teeth on posterior part of jaw; at symphysis 8-11 series of teeth, those of the anterior two series caniniform and irregular in size, the remainder small and setiform; 2-7 enlarged canines anteriorly. Lower jaw similar, with 2-6 enlarged canines anteriorly. Vomer with 1-2 chevron-shaped series of fine teeth. Dentate area of palatines oval. Pharyngeals densely covered with conical teeth. Tongue smooth.

Dorsal fin with three spines, the first minute, followed by branched soft rays; second spine about half as long as, but as stout as, third spine; no scales on fin base. Anal fin similar, but second spine approximately as long as, and stouter than, third spine; first anal spine slightly longer than first dorsal spine. Pectoral fins rounded, principal rays branched. Pelvic fins inserted below pectoral fins, pointed, soft rays branched, second or third soft ray longest. Caudal fin truncate to rounded with basal scaly sheath.

COLOURATION: In life, head greenish to orange yellow, becoming greyish ventrally; upper half of flanks on anterior half of body greenish to orange yellow (each scale with dark margin), remainder of body greenish to pinkish grey becoming steel-blue posteriorly; posterior and ventral margin of orbit with a thin orange line bordered with a narrow dark line; pectoral fin base bright orange. Iris light brown with two horizontal blue lines, one above and one below pupil, lines joined posteriorly. Dorsal fin with a bright orange basal stripe, remainder pinkish greyish hyaline with faint horizontal to oblique wavy reddish lines and blue distal margin; anal fin grey with about five horizontal rows of red spots and bluish distal margin; caudal fin hyaline near dorsal and ventral margins, otherwise steel blue with small red spots, becoming faintly reddish on posterior margin; pectoral fins pinkish hyaline; pelvic fins pinkish hyaline with dark grey spine and red lines between rays.

In alcohol, head and body brown, slightly lighter anteriorly; pectoral and pelvic fins brownish to hyaline, other fins mostly brown; pectoral fin base and basal stripe on dorsal fin beige.

HABITAT AND DISTRIBUTION

Pseudochromis andamanensis was collected at Born (Perforated) Island and of the Similan Islands in the eastern Andaman Sea; it was also observed underwater at Kata Bay, Phuket Island and in the Surin Islands in the southern Mergui Archipelago. It was found in coral areas at depths of 5-35 m, and was relatively common.

REMARKS

The present species is among the smaller species of *Pseudochromis*; underwater observations indicated a maximum size of about 50 mm SL. Fragments of decapods were found in the gut of several specimens.

Etymology: the name *andamanensis* refers to the Andaman Sea, the only area where this species has been found.

COMPARISONS

Pseudochromis andamanensis appears to be closest to *P. marshallensis* Schultz from the western Pacific. The two species may be distinguished by the number of soft dorsal

rays (22-24 in *P. andamanensis*; 25 or 26 in *P. marshallensis*), the number of scale rows from the origin of the lateral line to the base of the caudal fin (36-38 in *P. andamanensis*; 40-43 in *P. marshallensis*), and live colouration (*P. andamanensis* lacks the greyish pink spots present on the body of *P. marshallensis*).

MATERIAL EXAMINED

- (a) *Holotype*, 44.9 mm SL, at 10 m, coral and boulders, rocks at north end of Campbell Bay, Similan Island, Similan Islands, eastern Andaman Sea, coll. R. Lubbock & N. Polunin on 11.3.1977; BMNH 1979.1.9.2.
- (b) 1 *Paratype*, 35.4 mm SL, coll. with (a); AMS I.20692-001.
- (c) 1 *Paratype*, 38.9 mm SL, data as for (a) but coll. on 12.3.1977; MHNG 2023.68.
- (d) 1 *Paratype*, 45.2 mm SL, coll. with (c); USNM 219402.
- (e) 7 *Paratypes*, 20.3-48.2 mm SL, coll. with (c); BMNH 1979.1.9.4-10.
- (f) 1 *Paratype*, 36.8 mm SL, at 10 m, coral patch on sand, south end of Bharngu Island, Similan Islands, eastern Andaman Sea, coll. R. Lubbock & N. Polunin on 12.3.1977; BMNH 1979.1.9.11.
- (g) 1 *Paratype*, 39.8 mm SL, coll. with (f); BPBM 22522.
- (h) 1 *Paratype*, 31.3 mm SL, at 9-11 m, coral on sand, southeast side of Born (Perforated) Island, eastern Andaman Sea, coll. R. Lubbock & N. Polunin on 8.3.1977; BMNH 1979.1.9.3.

Pseudochromis aurifrons n. sp.

Figure 2

DESCRIPTION

Based on one fish, 46.9 mm SL, from New Guinea.

Dorsal fin rays III 22; anal fin rays III 12; pectoral fin rays 18 (first ray minute, weakly spinous, very closely applied to second ray); pelvic fin rays I 5; principal caudal fin rays 17, with 5 or 6 small, supplementary, rays above and below. Scale rows from origin of lateral line to base of caudal fin 36; tubular lateral line scales 24 in anterior portion, 7 in posterior, disconnected, portion beginning on the fifth row of scales below anterior portion (total 31 tubular scales); transverse scale series, counted forwards and upwards from the second anal spine, 11 + 1 + 2; predorsal scales 20; five rows of scales on preoperculum. 15 sensory pores in the post- and sub-orbital series, starting on the vertical above eye centre and extending down the hind margin of the eye to the upper edge of the maxilla (the first pore adjacent to the maxilla is included in the count). Gill rakers on first arch 5 + 1 + 13 = 19 (all elements counted). Maximum size 46.9 mm SL, 58.1 mm TL.

The following measurements are presented as percentages of the SL. Head length 29.0; snout length 7.5; orbit diameter 9.8; predorsal length 36.2; preanal length 61.8; depth at first dorsal spine 27.9; body width 16.4; least depth of caudal peduncle 15.4; dorsal fin base length 54.4; length of third soft dorsal ray 14.3; anal fin base length 22.2; length of third soft anal ray 13.4; pectoral fin length 20.7; length of longest pelvic fin ray 22.6; caudal fin length 23.9.

Small, elongate, reef fish, head and body moderately compressed. Jaws nearly equal anteriorly, reaching posteriorly to below pupil; cleft of mouth oblique. Eye with pear-shaped pupil. Scales on head and anterior part of body cycloid, remainder ctenoid. Snout, preorbital area, chin and maxilla naked; five transverse scale series on preoperculum; scales irregular and large on operculum. Lateral line scales with sensory tubules; lateral line series interrupted, consisting of an anterior portion rising rapidly from dorsal angle of branchial opening, then continuing parallel with dorsal fin base



FIG. 2.

Holotype of *Pseudochromis aurifrons*, 46.9 mm SL.

towards posterior part of fin, and a posterior portion on caudal peduncle. Upper part of operculum, edge of preoperculum, orbital and supraorbital region of head, lower jaw and snout bearing sensory canals; opercular edge entire, inconspicuously serrated dorsally; edge of preoperculum smooth.

Upper jaw with two lateral series of fine, sharp, slightly recurved, subconical teeth on posterior part of jaw, the outer series enlarged; at symphysis 8-10 series of teeth, those of the anterior two series caniniform and irregular in size, the remainder small and setiform; anteriorly 4 enlarged curved canines, outer canines largest. Lower jaw dentition similar, but with single lateral series on posterior part of jaw; 2 enlarged canines anteriorly. Vomer with a chevron-shaped series of fine teeth. Dentate area of palatines elongate oval. Pharyngeals densely covered with conical teeth. Tongue smooth.

Dorsal fin with three spines, the first very small, followed by branched soft rays; second spine shorter than, but as stout as, third spine; no scales on fin base. Anal fin similar, but second spine slightly stouter than third. Pectoral fins rounded, principal rays branched. Pelvic fins inserted below pectoral fins, pointed, soft rays branched, second soft ray longest. Caudal fin truncate, with basal scaly sheath.

COLOURATION: In life, snout and dorsal contour of head and nape, above a line from ventral margin of eye to base of first soft dorsal ray, bright yellow; remainder of head and body dark blue-grey with pinkish tinges, lighter ventrally; minute white spot at base of penultimate and ultimate dorsal rays. Iris dark blue. Dorsal fin bright yellow on spinous portion, remainder pinkish hyaline with grey basal quarter; pectoral, pelvic

and anal fins pinkish hyaline; caudal fin basally with blue-grey central portion, becoming hyaline posteriorly and pinkish hyaline on upper and lower margins.

In alcohol, bright yellow fades to beige, blue-grey becomes brown.

HABITAT AND DISTRIBUTION

Pseudochromis aurifrons is known only from Basilisk passage off Port Moresby, where a single specimen was found at 25 m among rocks on a steep slope. On two subsequent dives to 55-60 m at the same locality, I failed to find any further specimens of *P. aurifrons*; the closely related *P. paccagnellae* Axelrod was also absent, although common at other localities visited in Papua New Guinea (New Britain, Admiralty Is.).

REMARKS

Etymology: the name *aurifrons* is derived from the Latin *aureus*-golden and *frons*-forehead, and refers to the distinctive colouration of the present species.

COMPARISONS

Pseudochromis aurifrons is very close in morphology to *P. diadema* Lubbock & Randall from the western Pacific, *P. paccagnellae* Axelrod from the eastern Indian Ocean and western Pacific, and *P. porphyreus* Lubbock & Goldman from the western and central Pacific. These species may be distinguished by live colour pattern. The combination of a bright yellow snout and dorsal contour of head and nape with a blue-grey body is diagnostic for *P. aurifrons*; it is quite distinct from *P. diadema*, in which the body is primarily yellow with the exception of a violet to magenta dorsal contour, from *P. paccagnellae*, in which the anterior half of the body is magenta with the posterior half abruptly yellow, and from *P. porphyreus*, in which the body is uniform magenta.

MATERIAL EXAMINED

- (a) *Holotype*, 46.9 mm SL, at 25 m, among rocks on steep slope, east side of Basilisk passage, Port Moresby, Papua New Guinea, coll. R. Lubbock on 9.7.1975; BMNH 1979.1.9.12.

Pseudochromis elongatus n. sp.

Figure 3

DESCRIPTION

Based on twelve fishes, 12.7-36.2 mm SL, from the Molucca Islands.

Dorsal fin rays III (first spine minute) 25-27 (only one fish with 25, one fish with 27); anal fin rays III (first spine minute) 14 or 15 (only one fish with 14); pectoral fin rays 17 or 18 (only one fish with 17) (first ray minute, weakly spinous, very closely applied to second ray); pelvic fin rays I 5; principal caudal fin rays 17, with 4 or 5 small, supplementary, rays above and below. Scale rows from origin of lateral line to base of caudal fin 37-40 (37 f1, 38 f5, 39 f1, 40 f1); tubular lateral line scales 23-26 (23 f1, 24 f3, 25 f3, 26 f1) in anterior portion, 2-7 in posterior, disconnected, portion beginning on the fifth row of scales below anterior portion (total 26-31 tubular scales); transverse scale series, counted forwards and upwards from the second anal spine, 10-12 + 1 + 1 or 2; predorsal scales 15-21; 4 rows of scales on preoperculum. 9-13 sensory pores in

the post- and sub-orbital series, starting on the vertical above eye centre and extending down the hind margin of the eye to the upper edge of the maxilla (the first pore adjacent to the maxilla is included in the count). Gill rakers on first arch 4 or 5 + 1 + 9-11 = 15-17 (all elements counted). Maximum size 36.2 mm SL, 43.7 mm TL (one fish, 35.9 mm SL, with caudal filaments attained 48.7 mm TL).

The following measurements are presented as percentages of the SL, and do not include data from specimens less than 27 mm SL. Head length 26.0-28.7, mean 27.4;

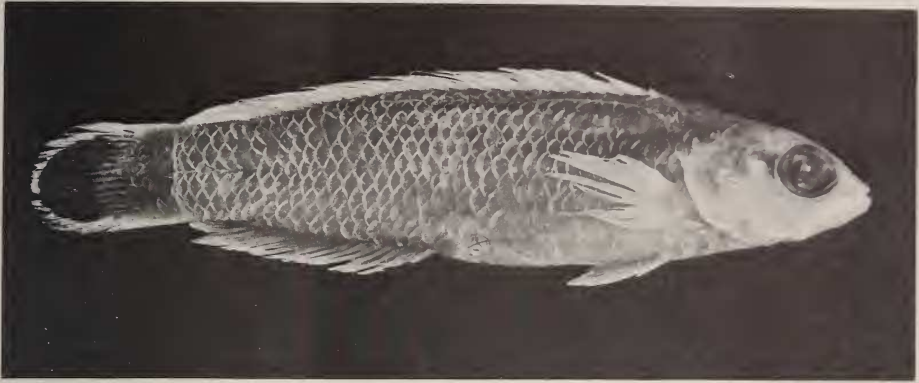


FIG. 3.

Holotype of *Pseudochromis elongatus*, 36.2 mm SL.

snout length 5.1-6.2, mean 5.8; orbit diameter 8.4-9.8, mean 9.2; predorsal length 31.8-34.7, mean 33.2; preanal length 59.0-64.7, mean 62.9; depth at first dorsal spine 22.9-26.1, mean 24.0; body width 10.8-13.6, mean 12.2; least depth of caudal peduncle 13.3-15.0, mean 14.3; dorsal fin base length 57.7-63.3, mean 59.8; length of third soft dorsal ray 9.4-16.2, mean 12.4; anal fin base length 24.4-28.6, mean 26.6; length of third soft anal ray 9.1-12.7, mean 11.4; pectoral fin length 16.9-19.5, mean 18.3; length of longest pelvic fin ray 16.3-20.2, mean 18.5; caudal fin length 20.6-35.7, mean 24.1.

Small, elongate, reef fish, head and body moderately compressed. Jaws nearly equal anteriorly, reaching posteriorly to below pupil; cleft of mouth oblique. Eye with pear-shaped pupil. Scales on head and anterior part of body cycloid, remainder ctenoid. Snout, preorbital and anterior part of interorbital area, chin and maxilla naked; 4 transverse scale series on preoperculum; scales irregular and large on operculum. Lateral line scales with sensory tubules; lateral line series interrupted, consisting of an anterior portion rising rapidly from dorsal angle of branchial opening, then continuing parallel with dorsal fin base towards posterior part of fin, and a posterior portion on caudal peduncle and occasionally scaly base of caudal fin. Upper part of operculum, edge of preoperculum, orbital and supraorbital region of head, lower jaw and snout bearing sensory canals; opercular edge entire, inconspicuously serrated dorsally; edge of preoperculum smooth.

Upper jaw with a single lateral series of fine, sharp, slightly recurved, subconical teeth on posterior part of jaw; at symphysis about 10 series of teeth, those in anterior series caniniform and irregular in size, remainder small and setiform; 4-7 enlarged

canines anteriorly. Lower jaw similar, with 2-6 enlarged canines anteriorly. Vomer with 2-3 chevron-shaped series of fine teeth. Dentate area of palatines oval. Pharyngeals densely covered with conical teeth. Tongue smooth.

Dorsal fin with three spines, the first minute and about one quarter length of second, the second about half to three quarters length of third; spines followed by soft rays, mostly unbranched (approximately 6 or 7 rays branched posteriorly); no scales on fin. Anal fin with three spines, the first minute and about one sixth length of second, the second and third about equal in length; second spine stouter than third; spines followed by soft rays, unbranched anteriorly (approximately 8-10 rays branched posteriorly); no scales on fin. Pectoral fins rounded, principal rays branched. Pelvic fins inserted below pectoral fins, pointed, soft rays branched, second or third soft ray longest. Caudal fin rounded with basal scaly sheath.

COLOURATION: Live colours not recorded, but may have been purplish according to V.G. Springer (*in litt.*). In alcohol, head and body brown, slightly lighter anteriorly; posterior margin of orbit dark brown. Iris black. Caudal fin brown, becoming black on posterior half; upper, lower and posterior margins of caudal fin edged with light brownish hyaline; all other fins light brownish hyaline.

HABITAT AND DISTRIBUTION

Pseudochromis elongatus is known only from the Molucca Islands, where it was collected on coral reefs to a depth of 15 m.

REMARKS

Etymology: the latin name *elongatus* refers to the elongate body shape of the present species.

COMPARISONS

Pseudochromis elongatus is a rather distinctive species and may be separated from other members of the genus by the following combination of characters: soft dorsal fin rays 25-27 (usually 26), scale rows from origin of lateral line to caudal fin base 37-40, gill rakers 4 or 5 + 1 + 9-11, depth at first dorsal spine 22.9-26.1% of SL, length of longest pelvic fin ray 16.3-20.2% of SL, and colouration in alcohol as described above.

MATERIAL EXAMINED

- (a) *Holotype*, 36.2 mm SL, at 0-7.5 m, coral reef right on shore, just above abrupt drop-off, 2 km east of Sawa Telu, northwest side of Ambon Island, Molucca Islands, Indonesia, coll. V. Springer and M. Gomon on 8.1.1973; USNM 210273.
- (b) 3 *Paratypes*, 23.5-27.6 mm SL, at 12-15 m, coral reef on sharp slope drop-off, just offshore and just west of Tandjung Namatatuni, Ceram, Molucca Islands, Indonesia, coll. V. Springer and M. Gomon on 19.1.1973; USNM 210020.
- (c) 1 *Paratype*, 35.9 mm SL, isolated coral head at 9 m and coral patch at 3½ m, Saparua, Molucca Islands, Indonesia, coll. V. Springer and M. Gomon on 18.1.1973; BMNH 1979.1.9.13.
- (d) 1 *Paratype*, 33.2 mm SL, coll. with (c); BPBM 22521.
- (e) 1 *Paratype*, 30.8 mm SL, coll. with (c); AMS I.20172-001.
- (f) 1 *Paratype*, 12.7 mm SL, coll. with (c); MHNG 2023.70.

- (g) 4 *Paratypes*, 20.1-32.3 mm SL, coral heads on sand, Saparua off Kampungmahu, Molucca Islands, Indonesia, coll. V. Springer & M. Gomon on 17.1.1973; USNM 210135.

Pseudochromis marginatus n. sp.

Figure 4

DESCRIPTION

Based on four fishes, 41.1-49.3 mm SL, from New Guinea.

Dorsal fin rays III 21 or 22 (only one fish with 21); anal fin rays III 13; pectoral fin rays 19 or 20 (only one fish with 19) (first ray minute, weakly spinous, very closely applied to second ray); pelvic fin rays I 5; principal caudal fin rays 17, with about 4 or 5, small, supplementary, rays above and below. Scale rows from origin of lateral line to base of caudal fin 29-31 (29 f1, 30 f1, 31 f1); tubular lateral line scales 24-27 (24 f1 25 f1, 27 f1) in anterior portion, 11-14 in posterior, disconnected, portion beginning on the fourth row of scales below anterior portion (total 36-41 tubular scales); transverse scale series, counted forwards and upwards from the second anal spine, 11 or 12 + 1 + 2 or 3; predorsal scales 23-25; 3-5 rows of scales on preoperculum. 11-14 sensory pores in the post- and suborbital series, starting on the vertical above eye centre and extending down the hind margin of the eye to the upper edge of the maxilla (the first pore adjacent to the maxilla is included in the count). Gill rakers on first arch 4 or 5 + 1 + 8-10 = 13-16 (all elements counted). Maximum size 49.3 mm SL, 61.6 mm TL.

The following measurements are presented as percentages of the SL. Head length 31.4-33.5, mean 32.4; snout length 7.5-8.9, mean 8.3; orbit diameter 8.9-9.7, mean 9.2; predorsal length 36.7-38.7, mean 37.3; preanal length 61.0-66.5, mean 63.3; depth at first dorsal spine 34.3-36.9, mean 35.6; body width 14.8-17.0, mean 15.8; least depth of caudal peduncle 15.6-16.7, mean 16.3; dorsal fin base length 55.4-61.5, mean 58.7; length of third soft dorsal ray 11.4-14.6, mean 13.6; anal fin base length 28.6-30.4, mean 29.4; length of third soft anal ray 11.4-12.8, mean 12.1; pectoral fin length 20.0-23.6, mean 21.4; length of longest pelvic fin ray 22.5-26.5, mean 23.9; caudal fin length 20.3-25.0, mean 23.0.

Small, elongate, reef fish, head and body moderately compressed. Jaws nearly equal anteriorly, reaching posteriorly to below pupil; cleft of mouth oblique. Eye with pear-shaped pupil. Scales on head and anterior part of body cycloid, remainder ctenoid. Scales in interorbital region extending anteriorly approximately to level of posterior nostrils; remainder of snout, chin and maxilla naked; 3-5 transverse scale series on preoperculum; scales irregular and large on operculum. Lateral line scales with sensory tubules; lateral line series interrupted, consisting of an anterior portion rising rapidly from dorsal angle of branchial opening, then continuing parallel with dorsal fin base towards posterior part of fin, and a posterior portion on caudal peduncle and scaly base of caudal fin. Upper part of operculum, edge of preoperculum, orbital and supra-orbital region of head, lower jaw and snout bearing sensory canals; opercular edge entire, inconspicuously serrated dorsally; edge of preoperculum smooth.

Upper jaw with one or two lateral series of fine, sharp, slightly recurved subconical teeth on posterior part of jaw; at symphysis about 10 series of teeth, those of the anterior two series caniniform and irregular in size, the remainder small and setiform; 3-6 enlarged canines anteriorly. Lower jaw similar, with about eight series of teeth at symphysis and 2-4 enlarged canines anteriorly. Vomer with 3-6 chevron-shaped series of fine teeth. Dentate area of palatines oval. Pharyngeals densely covered with conical teeth. Tongue smooth.

Dorsal fin with three spines, the first very small, followed by mostly branched soft rays (anterior 4-6 soft rays usually unbranched); second spine about two thirds as long as, but as stout as, third spine; base of fin scaled, extent of scalation increasing slightly posteriorly. Anal fin similar, but all soft rays branched. Pelvic fins inserted below pectoral fins, pointed, soft rays branched, second or third soft ray longest. Caudal fin rounded with basal scaly sheath.

COLOURATION: Live colours unknown. In alcohol, head and body uniform light brown, lighter ventrally; scattered dark spots on upper part of operculum and preoperculum, and in predorsal region. Iris dark brown. Pectoral fins brownish hyaline; pelvic fins light brown; dorsal and anal fins light brown, posteriorly with a dark submarginal stripe; caudal fin light brown, posteriorly with a crescent-shaped dark submarginal stripe.



FIG. 4.

Holotype of *Pseudochromis marginatus*, 41.1 mm SL.

HABITAT AND DISTRIBUTION

Pseudochromis marginatus is known only from the vicinity of Madang in northeast New Guinea. Ecological data for one specimen indicate that this species is found in rather shallow water in areas of living hard coral and soft coral.

REMARKS

Etymology: the Latin name *marginatus* refers to the dark submarginal stripes on the dorsal, anal and caudal fins.

COMPARISONS

The present species is quite distinctive among *Pseudochromis*, and may be easily distinguished by the combination of a deep body (depth at first dorsal spine 34.3-36.9% of SL), a large head (31.4-33.5% of SL), a low number of soft dorsal (21 or 22) and soft

anal (13) fin rays, and a low number of scales from the origin of the lateral line to the base of the caudal fin (29-31). The submarginal dark stripes on the dorsal, anal and caudal fins provide an additional means of distinguishing this species.

MATERIAL EXAMINED

- (a) *Holotype*, 41.1 mm SL, Madang, Papua New Guinea, coll. B. Collette *et al.* on 26 and 27.5.1970; AMS I.17087-009.
- (b) 1 *Paratype*, 46.0 mm SL, Madang harbour, Papua New Guinea, coll. F. Talbot on 31.7.1969; AMS I.16671-043.
- (c) 1 *Paratype*, 46.7 mm SL, coll. with (b); BMNH 1979.1.9.14.
- (d) 1 *Paratype*, 49.3 mm SL, at 1.5 m, live hard coral and soft coral, Madang, Papua New Guinea, coll. J. Randall on 12.8.1973; BPBM 15762.

Pseudochromis veliferus n. sp.

Figure 5

DESCRIPTION

Based on nine fishes, 54.5-81.1 mm SL, from the Great Barrier Reef.

Dorsal fin rays II 25 or 26 (only one fish with 26); anal fin rays III 16; pectoral fin rays 18 or 19 (usually 19) (first ray minute, weakly spinous, very closely applied to second ray); pelvic fin rays I 5; principal caudal fin rays 17, with about 5 small, supplementary, rays above and below. Scale rows from origin of lateral line to base of caudal fin 46-49 (46 f2, 47 f2, 48 f3, 49 f2); tubular lateral line scales 33-38 (33 f1, 34 f1, 35 f2, 36 f3, 37 f1, 38 f1) in anterior portion, 7-9 in posterior, disconnected, portion beginning on the sixth or seventh row of scales below anterior portion (total 40-47 tubular scales); transverse scale series, counted forwards and upwards from the second anal spine, 16 or 17 + 1 + 3; predorsal scales 21-26; 6 or 7 rows of scales on preoperculum. 18-27 sensory pores in the post- and sub-orbital series, starting on the vertical above eye centre and extending down the hind margin of the eye to the upper edge of the maxilla (the first pore adjacent to the maxilla is included in the count). Gill rakers on first arch 4 or 5 + 1 + 10 or 11 = 15-17 (all elements counted). Maximum size 81.1 mm SL, 124.5 mm TL.

The following measurements are presented as percentages of the SL. Head length 27.3-30.1, mean 28.4; snout length 7.0-8.2, mean 7.5; orbit diameter 7.2-8.7, mean 8.0; predorsal length 28.5-32.1, mean 29.8; preanal length 58.7-62.4, mean 60.3; depth at first dorsal spine 26.3-29.1, mean 27.3; body width 11.4-13.6, mean 12.6; least depth of caudal peduncle 13.6-15.9, mean 15.0; dorsal fin base length 65.9-69.4, mean 67.2; length of third soft dorsal ray 15.9-19.8, mean 17.9; anal fin base length 30.7-33.9, mean 32.3; length of third soft anal ray 11.9-14.9, mean 13.5; pectoral fin length 23.8-26.3, mean 24.4; length of longest pelvic fin ray 20.7-24.4, mean 22.4; caudal fin length 41.1-57.2, mean 52.4.

Small, elongate, reef fish, head and body moderately compressed. Jaws nearly equal anteriorly, reaching posteriorly to below pupil; cleft of mouth oblique. Eye with pear-shaped pupil. Scales on head and anterior part of body cycloid, remainder ctenoid. Snout, preorbital and anterior part of interorbital area, chin and maxilla naked; 6 or 7 transverse scale series on preoperculum; scales irregular and large on operculum. Lateral

line scales with sensory tubules; lateral line series interrupted, consisting of an anterior portion rising rapidly from dorsal angle of branchial opening, then continuing parallel with dorsal fin base towards posterior part of fin, and a posterior portion on caudal peduncle and scaly base of caudal fin. Upper part of operculum, edge of preoperculum, orbital and supraorbital region of head, lower jaw and snout bearing sensory canals; opercular edge entire, inconspicuously serrated dorsally; edge of preoperculum smooth.

Upper jaw with a single lateral series of sharp, slightly recurved, subconical teeth on posterior part of jaw; at symphysis 7-9 series of teeth, those of the anterior series caniniform and irregular in size, the remainder small and setiform; anteriorly 2-6 enlarged curved canines, outer canines largest. Lower jaw dentition similar, but with

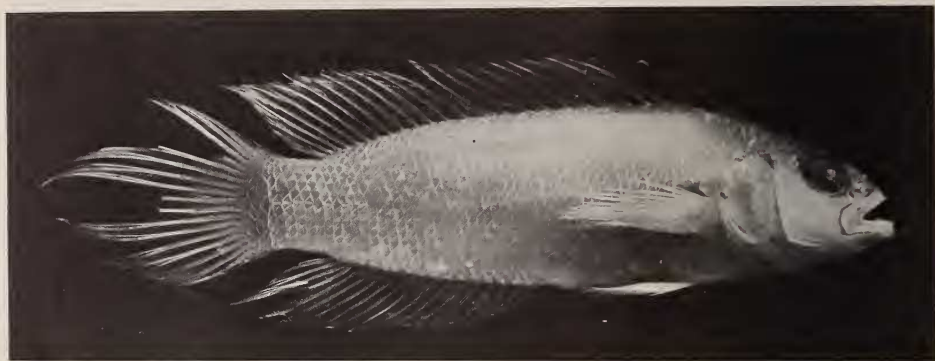


FIG. 5.

Holotype of *Pseudochromis veliferus*, 61.5 mm SL.

about 6 series of teeth at symphysis; 2-4 enlarged canines anteriorly. Vomer with a chevron-shaped series of fine teeth. Dentate area of palatines elongate oval. Pharyngeals covered with conical teeth of irregular size. Tongue smooth.

Dorsal fin with two spines, the first just over half length of second, followed by mostly unbranched soft rays (approximately anterior 15-17 soft rays unbranched); second spine very slightly stouter than first; no scales on fin base. Anal fin with three spines, the first small, followed by mostly branched soft rays (first soft ray unbranched); second spine shorter than, but as stout as, third spine; no scales on fin base. Pectoral fins rounded, principal rays branched. Pelvic fins inserted below pectoral fins, pointed, soft rays branched, second soft ray longest. Caudal fin lanceolate, with basal scaly sheath.

COLOURATION: In life, holotype with dorsal contour of head and body anterior to base of sixth soft dorsal ray grey to charcoal grey; remainder of head and body whitish, becoming yellowish on peduncle; upper third of flanks with salmon pink tinges; a dark line on posterior margin of orbit, becoming blue ventrally and running to upper edge of maxilla; a short parallel mustard line immediately above anterior part of blue line. Iris reddish with a horizontal blue line below pupil, another blue line from dorsal margin of pupil to posterior margin of iris, and a short bluish line near upper margin of iris. Pectoral and pelvic fins pinkish hyaline, anal and caudal fins light yellow; anal

fin anteriorly with faint oblique to horizontal orange lines, and blue distal margin; dorsal fin black anterior to second or third soft ray with three orange spots basally, becoming dark grey and then yellow posteriorly, with about twelve oblique to horizontal lines, lines dark grey anteriorly, yellowish posteriorly; dorsal fin with dark submarginal region anterior to approximately 20th soft ray, and with fine blue distal margin. Six other fishes from Lizard Island, 55.1-79.2 mm SL, similar to above; in smaller specimens (<60 mm SL), salmon pink on upper third of flanks more pronounced, in larger specimens salmon pink almost or completely absent. In two fishes, 69.7 and 78.2 mm SL, dorsal contour of head and body anterior to base of third soft dorsal ray bright yellow, remainder whitish; a dark line on posterior margin of orbit, becoming blue ventrally and running to upper edge of maxilla. Iris as in holotype. Pectoral and pelvic fins pinkish hyaline; dorsal fin bright yellow anteriorly, greyish posteriorly, with about nine or ten oblique to horizontal lines running posteriorly from fourth soft ray; dorsal fin orange submarginally, with a fine blue distal margin; anal fin yellowish white, becoming slightly bluish distally, with about six or seven oblique to horizontal reddish lines and a fine blue distal margin; caudal fin whitish, slightly yellowish posteriorly.

In alcohol, fishes mostly beige; grey and dark markings on head, body and fins become brown, remain prominent.

HABITAT AND DISTRIBUTION

Pseudochromis veliferus is known only from Lizard Island and One Tree Island on the Great Barrier Reef. At Lizard Island it was generally found at depths of 15-20 m around formations of coral and rock on sand.

REMARKS

Underwater observations indicated that *P. veliferus* had two quite distinct colour forms. In one form the dorsal contour of the head and anterior part of the body was grey, while in the other form it was bright yellow (see above); no intermediates were observed in the field. A single aquarium specimen (approx. 60 mm SL) was observed to change colour from the bright yellow form to the grey form over a period of about two weeks.

Etymology: the name *veliferus* refers to the large dorsal and caudal fins of this species.

COMPARISONS

The present species is distinctive among *Pseudochromis*. It may be identified by the large size of its dorsal fin (length of third soft dorsal ray 15.9-19.8% of SL), the number of dorsal rays (II 25 or 26), the number of scales in the transverse series (16 or 17 + 1 + 3), and the lanceolate caudal fin. Colour patterns of living fishes are diagnostic.

MATERIAL EXAMINED

- (a) *Holotype*, 61.5 mm SL, at 15 m, corals and rocks on sand, North Point, Lizard Island, Great Barrier Reef, coll. R. Lubbock on 4.5.1975; BMNH 1979.1.9.36.
- (b) 2 *Paratypes*, 55.1-78.2 mm SL, coll. with (a); BMNH 1979.1.9.39-40.
- (c) 2 *Paratypes*, 60.9-79.2 mm SL, at 20 m, rocks on sand, North Point, Lizard Island, Great Barrier Reef, coll. R. Lubbock on 3.5.1975; BMNH 1979.1.9.37-38.

- (d) 1 *Paratype*, 69.7 mm SL, data as for (a) but coll. on 11.5.1975; USNM 219403.
- (e) 1 *Paratype*, 54.5 mm SL, coll. with (d); BPBM 22523.
- (f) 1 *Paratype*, 55.2 mm SL, data as for (a) but coll. on 1.6.1975; MHNG 2023.69.
- (g) 1 *Paratype*, 81.1 mm SL, One Tree Island, Great Barrier Reef, coll. F. Talbot *et al.* in 1969; AMS I.15682-022.

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